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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,250	11/21/2006	Timothee, Pol, Jean Toury	28944/50019	9696
57726 7590 03/03/2009 MILLER, MATTHIAS & HULL ONE NORTH FRANKLIN STREET SUITE 2350 CHICAGO, IL 60606				
EXAMINER				
LYONS, MICHAEL A				
ART UNIT		PAPER NUMBER		
2877				
MAIL DATE		DELIVERY MODE		
03/03/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/568,250

**Applicant(s)**

TOURY ET AL.

**Examiner**

MICHAEL A. LYONS

**Art Unit**

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8506)  
Paper No(s)/Mail Date 051806
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the Galileo telescope of claims 7 and 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. This particularly holds true with the method claims, which feature passive voice verb usage rather than the standard practice of active voice verbs.

Claim 1 recites the limitation "the noninvasive detection" in line 1. There is insufficient antecedent basis for this limitation in the claim. What noninvasive detection is being referred to here?

Claim 1 recites the limitation "the variations in the phase shift" in line 5. There is insufficient antecedent basis for this limitation in the claim. What variations of what phase shift are being referred to here?

Claim 1 recites the limitation "the servocontrol of the respective path lengths" in lines 8-9. There is insufficient antecedent basis for this limitation in the claim. What servocontrol is being referred to here?

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the elements required for the limitation "the servocontrol of the respective path lengths of the reference beam and the probe beam".

Further, for claim 1, the examiner notes that applicants appear to be invoking 35 USC 112, 6<sup>th</sup> paragraph, with "scanning means suitable for". To ensure proper treatment of the claim language under 35 USC 112, 6<sup>th</sup> paragraph, the claim must read "scanning means for". Please see MPEP 2181.

Claim 1 recites the limitation "the images recorded" in line 14. There is insufficient antecedent basis for this limitation in the claim. What recorded images are being referred to here?

Regarding claims 2 and 5, the word "means" is preceded by the word(s) "scanning" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim 4 recites the limitation "the three directions in space, in the probe beam" in line 2. There is insufficient antecedent basis for this limitation in the claim. What directions in space is this referring to? Are these x-y-z Cartesian coordinates? Are they roll, pitch, and yaw? Also, the examiner is unsure what applicants mean by "in the probe beam". Does this mean the medium is moved so that it is always in contact with the measurement beam?

Claim 6 recites the limitation "the 0<sup>th</sup> order of the light beam" in line 3. There is insufficient antecedent basis for this limitation in the claim. What 0<sup>th</sup> order of what light beam is being referred to here?

Claim 6 recites the limitation "the paraxial 1<sup>st</sup>-order" in line 3. There is insufficient antecedent basis for this limitation in the claim. What paraxial 1<sup>st</sup> order is being referred to here?

Claim 7 recites the limitation "the angle between the 1<sup>st</sup>-order and the optical axis" in line 2. There is insufficient antecedent basis for this limitation in the claim. What angle is being referred to here?

Claim 8 recites the limitation "the polarization of the probe beam" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. What polarization is being referred to here?

Claim 9 recites the limitation "the noninvasive detection" in line 1. There is insufficient antecedent basis for this limitation in the claim. What is the noninvasive detection referred to here?

Claim 9 recites the limitation "the phase shift" in line 6. There is insufficient antecedent basis for this limitation in the claim. What phase shift is being referred to here?

Claim 9 recites the limitation "the region to be probed" in line 7 of the claim. There is insufficient antecedent basis for this limitation in the claim. Is the region to be probed the region of the medium to be probed? Or a different region entirely?

Claim 9 recites the limitation "the respective path lengths" in line 8. There is insufficient antecedent basis for this limitation in the claim. What respective path lengths are being referred to here?

Regarding claim 9, the word "means" is preceded by the word(s) "photodetection" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967). It should be noted that claim

9 is a method claim; to meet the requirements of 35 USC 112, 6<sup>th</sup> paragraph, the language “step for” must be used. See MPEP 2181.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the claim recites, “respective path lengths of the reference beam and the probe beam are servocontrolled by photodetection means”. Photodetectors are used to capture light for image generation. Signals from photodetectors, once processed, can be fed back into a system to help control path length differences in an interferometer via a feedback loop or some other control means, but the photodetectors cannot do this themselves. Therefore, there are steps missing between the light being captured by the photodetectors and the control of the optical path lengths of the reference and measurement arms of the interferometer.

Claim 9 recites the limitation “the cutoff frequency  $f_c$ ” in line 12. There is insufficient antecedent basis for this limitation in the claim. While the examiner realizes that a cutoff frequency is referred to in the apparatus claims, claim 9, being independent, is not part of the apparatus claim group; therefore, no antecedent basis exists for “the cutoff frequency” in this claim.

Claim 9 recites the limitation “the means for measuring the variations in the phase of the light beam” in lines 15-16. There is insufficient antecedent basis for this limitation in the claim. While the examiner realizes that a means for measuring is referred to in the apparatus claims, claim 9, being independent, is not part of the apparatus claim group; therefore, no antecedent basis exists for “the means for measuring” in this claim.

Claim 12 recites the limitation "the three directions in space, in the probe beam" in line 2. There is insufficient antecedent basis for this limitation in the claim. What directions in space is this referring to? Are these x-y-z Cartesian coordinates? Are they roll, pitch, and yaw? Also, the examiner is unsure what applicants mean by "in the probe beam". Does this mean the medium is moved so that it's always in contact with the measurement beam?

Claim 13 recites the limitation "the variation in the phase" in line 2. There is insufficient antecedent basis for this limitation in the claim. What variation is being referred to here?

Claim 14 recites the limitation "the 0<sup>th</sup> order of the light beam" in line 3. There is insufficient antecedent basis for this limitation in the claim. What 0<sup>th</sup> order of what light beam is being referred to here?

Claim 14 recites the limitation "the paraxial 1<sup>st</sup>-order" in line 3. There is insufficient antecedent basis for this limitation in the claim. What paraxial 1<sup>st</sup> order is being referred to here?

Claim 15 recites the limitation "the angle between the 1<sup>st</sup>-order and the optical axis" in line 2. There is insufficient antecedent basis for this limitation in the claim. What angle is being referred to here?

Claim 27 recites the limitation "the latter" in line 5. There is insufficient antecedent basis for this limitation in the claim. Does this refer to the electrooptic properties of the medium? Or something else entirely?

Claim 28 recites the limitation "the electrooptic properties" in line 2. There is insufficient antecedent basis for this limitation in the claim. What electrooptic properties are being referred to here? The examiner notes that claim 28 is dependent upon claim 9, while



electrooptic properties are not mentioned until claim 27. Perhaps claim 28 is best dependent upon claim 27?

Any claim not explicitly rejected above is inherently rejected as being dependent upon at least claims 1 and 9 above.

Due to the indefinite nature of the claims as set forth above, the examiner cannot clearly ascertain what the applicants' consider to be their invention. Therefore, the claims are precluded from examination under art at this time.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 5,872,360 to Paniccia et al., US Pat. 6,072,179 to Paniccia et al., US Pat. 6,271,671 to Charles, Jr. et al., US Pat. 6,587,258 to Kane, US Pat. 6,803,777 to Pfaff et al., US Pat. 7,206,078 to Pfaff et al., and US Pat. 7,450,237 to Zyss et al. The examiner notes that double patenting issues with the '237 patent to Zyss et al may exist once the examiner can ascertain what applicants' consider to be their invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. LYONS whose telephone number is (571)272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael A. Lyons/  
Primary Examiner, Art Unit 2877  
February 27, 2009